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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/986,231	10/22/2001	William Bush	004-2928-2	4991

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EXAMINER

STEELMAN, MARY J

ART UNIT	PAPER NUMBER
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2191

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/986,231

Applicant(s)

BUSH ET AL

Examiner

Mary J. Steelman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: Copy of accepted drawing.

DETAILED ACTION

1. This Office Action is in response to Remarks and Amendments received 25 May 2005.

Per Applicant's request, claim 48 has been amended. Per Applicant's request new claims 50-52 have been added. Claims 1-52 are pending.

Specification

2. Per Applicant's request, the Specification has been amended.

Drawings

3. In view of the amendments to the Specification and submission of Replacement Sheet for FIG. 3, the prior objections to the drawings are hereby withdrawn.

Claim Objections

4. In view of the amendment to claim 48, the prior claim objection is hereby withdrawn.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground

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provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1-52 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-36 of U.S. Patent No. 6,308,319 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims refer to similar limitations. As an example:

US Patent 6308319:

Claim 1: 'mutator code including an instance of a delay slot instruction coinciding with said safe point, wherein said delay slot instruction instance references storage encodable with an exception triggering value to trigger an exception for suspending said mutator at said safe point; executing said delay slot instruction instance...'

Application 09 / 986231:

Claim 1: 'mutator code executable by a processor and including an instruction that coincides with a safe point in an execution path... wherein based on a settable state of the processor, one of the operations of the instruction selectively triggers suspension of the mutator code at the safe point.'

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Both claims reference an 'instruction with a safe point', an instruction slot with a references to a settable state (storage encodable with an exception triggering value), and triggering an exception (suspending mutator code) at a safe point dependent on the settable state value. Similarly all independent claims reference an encoded settable state, with an exception triggering value, that is referenced by an interrupt (suspension / conditional trap) operation (instruction) which seeks to suspend mutator code at a safe point.

Allowable Subject Matter

7. The following is a statement of reasons for the indication of allowable subject matter:

As Applicant has pointed out on page 17, 5th paragraph of Remarks, in reference to claim 1, prior art of record does not teach or suggest a method of suspending a mutator code (See Specification page 2, lines 17-18) at a safe point (See Specification page 3, lines 4-5) with a specific arrangement when executing encoded parallelism: "code that uses one of the component operations of an instruction to selectively trigger, based on a settable state of a processor, suspension of mutator code at a safe point that coincides with the instruction." Similar limitations regarding parallel execution are recited in independent claim 47.

As Applicant has pointed out on page 19, 4th paragraph, in reference to claim 15, prior art of record fails to disclose: "use of an instance of an instruction coinciding with the safe point, wherein the instruction instance references storage encodable with an exception triggering value to trigger an exception for suspending the mutator at the safe point" or "in response to a start garbage collection event, encoding the storage with the exception triggering value, and thereafter

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executing the instruction instance, thereby triggering the exception; and in response to the exception, suspending the mutator at the safe point.”

Regarding independent claim 21, prior art of record fails to disclose “an instruction sequence including an operation that coincides with a safe point...wherein the operation is encoded in an otherwise unused position in the instruction sequence...executed at least partially in parallel...the operation referencing a state that selectively triggers suspension of the instruction sequence at the safe point.” These limitations are a broader version (**‘an operation that coincides with a safe point...encoded an otherwise unused position in the instruction sequence’**) of allowed claims of the parent case, US Patent 6,308,319 B1 to Bush, which more specifically called for **“mutator code including an instance of a delay slot instruction coinciding with said safe point”** (emphasis added)

The limitations are similarly recited in remaining independent claims 25, 32, 35, and 42. Such limitations, similarly recited in all independent claims (1, 15, 21, 25, 32, 35, 42, and 47), provide efficient coordination mechanism for garbage collection in multi-threaded code. These limitations are not present in the prior art of record and would not have been obvious. Thus dependent claims 2-14, 16-20, 22-24, 26-31, 33-34, 36-41, 43-46, and 48-52 are also allowed.

8. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

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Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary Steelman, whose telephone number is (571) 272-3704. The examiner can normally be reached Monday through Thursday, from 7:00 AM to 5:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached at (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned: 571-273-8300.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mary Steelman

08/18/2005



TUAN DAM
SUPERVISORY PATENT EXAMINER

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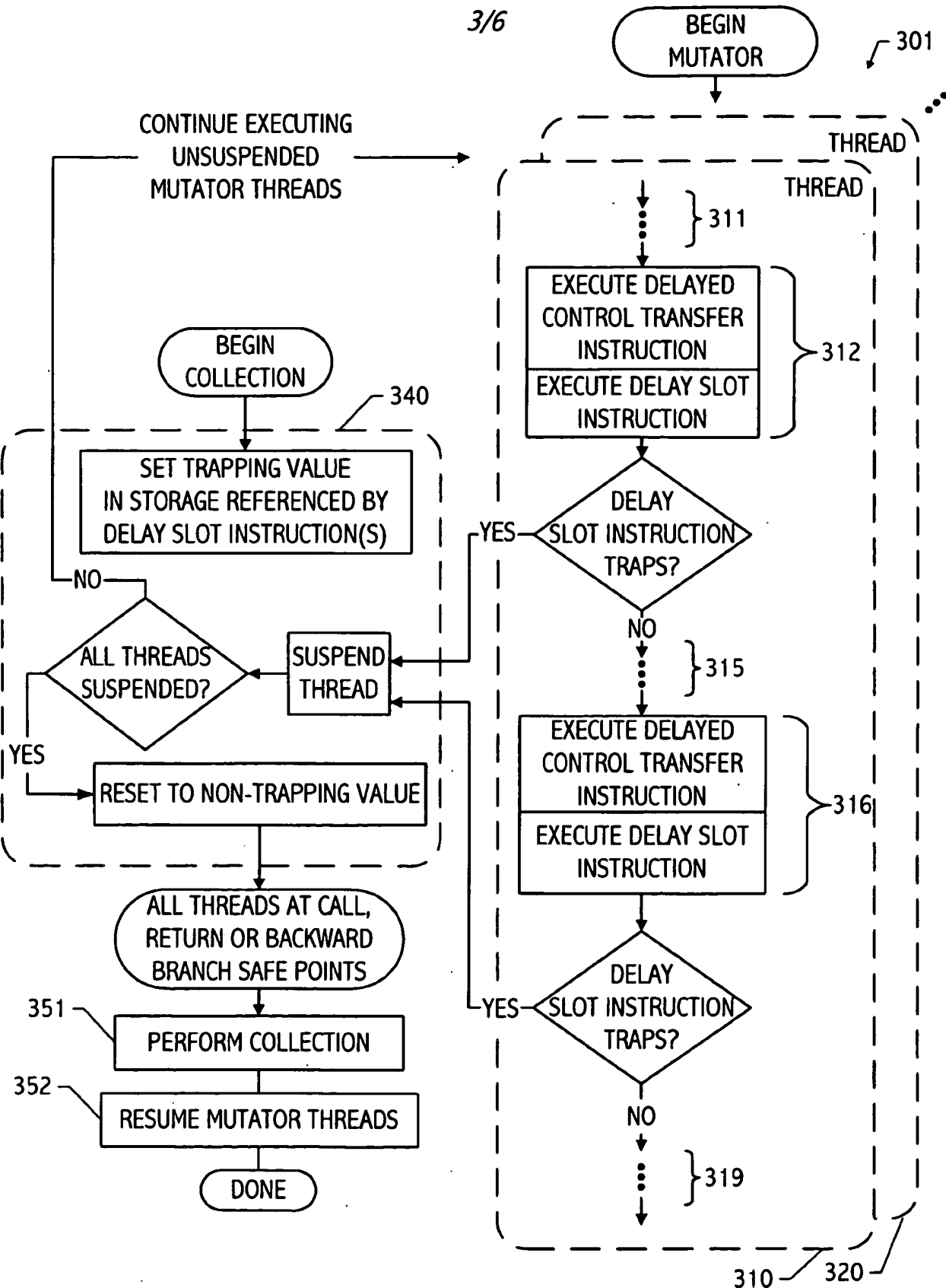


FIG. 3